

Bird Inventories at Devils Tower and Jewel Cave National Monuments, Mount Rushmore National Memorial, Fort Laramie, Fort Union Trading Post, and Knife River Indian Villages National Historic Sites, and Wind Cave National Park.

PRINCIPLE INVESTIGATOR:

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PROJECT STATEMENT:

The Northern Great Plains (NGP) Network has determined that bird inventories are needed at Devils Tower and Jewel Cave National Monuments (NM), Mount Rushmore National Memorial (NMEM), Fort Laramie, Fort Union Trading Post, and Knife River Indian Villages National Historic Sites (NHS), and Wind Cave National Park (NP). The NGP Network made this determination based on literature reviews, documented species at the park, scoping workshops, expert opinion, and a comparison of documented species lists to expected species lists. Justification for the project is described in detail in the Northern Great Plains Inventory Study Plan (Study Plan). The Principle Investigator is required to review the Study Plan before conducting fieldwork. The Principle Investigator is also required to contact park staff prior to conducting fieldwork at the park (contact the Network Coordinator or see the Study Plan for a list of park contacts).

Appendix F of the Study Plan lists the bird species documented at each of the above parks, and the species expected to be there, but not yet documented. The primary purpose of the proposed field inventories is to document those species not yet documented at the parks, however, it is expected that the field inventories will also verify the current presence of already-documented species, and provide additional information on relative abundance, distribution, and habitat use.

Detailed information on the parks included in this project statement, and the status of existing inventories, can be found in the Study Plan. In summary, the status of the parks in regards to bird inventories is (birds are categorized by the habitat or time of day when they are most likely to be detected):

- Devils Tower NM – about 75% documented. undocumented list is 26 species (22 upland birds, 3 nocturnal, 1 waterbird). habitat is Tower, ponderosa pine forest, cottonwood floodplain, river, and a prairie dog town. 1360 acres
- Fort Laramie NHS - about 40% documented. undocumented list is 99 species (69 upland birds, 24 waterbirds, 5 nocturnal birds). habitat is wheatgrass, disturbed areas, and riverine. 833 acres
- Fort Union Trading Post NHS – about 70% documented. undocumented list is 47 species (35 upland birds, 9 waterbirds, 3 nocturnal birds). habitat is riparian woodland, riverine, and native and restored prairie. 450 acres
- Jewel Cave NM - about 67% documented. undocumented list is 20 species (19 upland birds, 1 nocturnal bird). ponderosa pine forest. 1355 acres
- Knife River Indian Villages NHS - about 85% documented. undocumented list is 20 species (18 upland birds, 1 waterbird, 1 nocturnal bird). habitat is forested floodplain and mixed-grass prairie. 1758 acres
- Mount Rushmore NMEM – about 60% documented. undocumented list is 22 species (18 upland birds, 4 nocturnal birds). ponderosa pine forest. 1238 acres
- Wind Cave NP – about 85% documented. undocumented list is 17 species (15 upland birds, 2 nocturnal birds). ponderosa pine forest, riparian areas, mixed-grass prairie. 28,295 acres

For the nine parks as a whole, 83% of the undocumented species are birds typically found in the uplands and detectable during the day, 10% are associated with aquatic habitats, and 7% are best detected during nocturnal periods..

OBJECTIVES:

- Document the presence of those bird species not yet documented at the parks so that at least 90% of the expected breeding species at a park have been documented.
- Conduct the inventories in a way in which it is reasonably certain that those species not documented in the inventories are likely not breeding at the park and may be removed from the expected breeding species list.
- Conduct the sampling in a way that inferences can be made about the distribution and relative abundance of the breeding bird species of the park.
- Opportunistically acquire voucher specimens of dead individuals found in each park (following the guidance in the Study Plan).
- To the extent possible, locate and map significant features such as nest sites.
- Collect relevant supporting data (e.g., weather conditions).

METHODS:

The number and variety of species that need documentation in many of the parks in the NGP Network is great. Variable circular point (VCP) counts (i.e., distance sampling) allow for the detection of a wide variety and great number of species. Furthermore, the method allows for statistical analyses such as comparisons over time and space and estimates of precision. It is anticipated that many of the parks identified for inventories will also include bird monitoring as part of their long-term monitoring program. Therefore, VCP counts will be used in all of the above named parks except for Fort Union Trading Post NHS. The area of that park is too small to conduct the VCP transects described here.

VCP transects will be stratified across habitat types. One to two transects will be established in each park (except Fort Union Trading Post NHS) using a stratified random grid. Each transect will consist of 15 points spaced 250 meters apart. If necessary, the transects may bend to include the necessary 15 points. Transects will be counted once during the breeding season (approximately mid-May to June) for each of 3 years (see below). Birds will be recorded for 5 minutes: birds observed in the first 3 minutes will be recorded separately from those recorded in the final 2 minutes (see the Study Plan, Fancy and Sauer 2000, and Ralph et al. 1993, for additional guidance). For those parks that adjoin or are in the vicinity of U.S. Forest Service property (Jewel Cave and Devils Tower NM, Mount Rushmore NM, Wind Cave NP), the grid and sampling design will be established consistent with and in collaboration with U.S. Forest Service inventory efforts to the maximum extent possible. For all parks the data will be collected in a manner that allows analysis of and comparison to counts that use fixed radius methods. This is especially important in the prairie parks because of the large number of past and ongoing bird studies that make use of the methodology.

VCP counts are expected to document a large number of the expected species. However, it is expected that incidental observations will occur while traveling to points, before or after the counting periods, or otherwise. Observers will document all these species separately.

A second component of the bird inventory will consist of special species/habitat inventories. These essentially consist of non-systematic and non-random searches by experienced ornithologists. Observers are encouraged to explore habitats not covered by the transects. For example, Fort Laramie and Fort Union Trading Post NHS have several expected, but not yet documented, species associated with aquatic habitats. In these parks a concerted effort will be made to document birds associated with aquatic habitats. Observers will record all birds observed using a "microatlas" approach. Other habitats that warrant a special search include the prairie dog town, riparian area, and tower at Devils Tower NM; aquatic species at Knife River Indian Villages NHS; and the granite outcroppings at Mount Rushmore NM. The special species/habitat searches may also include tape callback methods, nocturnal surveys, and other specialized methods. The use of the methods is dependent of the park's expected but not documented list, which will vary from park to park and between years. The Principle Investigator shall coordinate with the Network Coordinator to identify the park-specific needs for specialized inventory methods.

All parks will have the surveys replicated for all three years. The following list the annual inventories by park (1 day of specialized searches is equivalent to 8 person-hours):

- Devils Tower NM – 1 transect in ponderosa pine, 1 day of specialized searches
- Fort Laramie NHS – 1 transect in grassland, 1 day of specialized searches
- Fort Union Trading Post NHS – 1 day of specialized searches
- Jewel Cave NM – 1 transect in unburned ponderosa pine, 1 transect in burned ponderosa pine, 1 day of specialized searches
- Knife River Indian Villages NHS – 1 transect in riparian forest, 1 transect in grassland, 1 day of specialized searches
- Mount Rushmore NM – 1 transect in ponderosa pine, 1 day of specialized searches
- Wind Cave NP – 1 transect in mixed-grass prairie, 1 transect in riparian

(Annual cumulative total is 9 transects and 6 days of specialized searches: project totals are 27 transects and 18 days of specialized searches.)

All spatial data will be recorded using GPS technology, accurate to within about 15 meters. This includes the location of survey points, observations during the specialized searches, locations of nests, incidental sightings, etc.. Observers are expected to make detailed notes and maps of all areas searched during the specialized searches.

The National Park Service will assist the field inventories to the maximum extent possible. This assistance may take the form of personnel hours, lodging, additional data, etc.. The Principle Investigator should work closely with the Network Coordinator to save costs wherever possible.

The National Park Service will enter the data into NRBib, NPSpecies, and the Dataset Catalog. In addition, NPS will transform spatial data into GIS formats. The Principle Investigator needs to work closely with the NGP Network Coordinator to ensure that data is recorded in a way that is conducive to these data sets and software applications.

The NGP network will ensure that all field inventories that could effect natural or cultural resources will be preceded by a thorough assessment of potential impacts and completion of appropriate compliance documentation. The compliance process will follow guidelines described in the Study Plan and those provided by the I&M WASO office and Director's Orders-12.

PRIMARY REFERENCES:

Britten, M. W. 1992. Avifauna and climbing at Devils Tower National Monument: Results of 1992 survey and literature search. Progress Report: March, 1993. Unpublished.

Fancy, S. G., and J. R. Sauer. 2000. Recommended methods for inventorying and monitoring landbirds in National Parks. Unpub. Rept. May 5, 2000.

Ministry of Environment, Lands and Parks, Resources Inventory Branch. 2001. Species inventory database. Prepared for the Terrestrial Ecosystems Task Force Resources Inventory Committee. Version 2.0. Government of British Columbia. <http://www.elp.gov.bc.ca/rib/wis/spi/>

Ralph, C., G. Geupel, P. Pyle, T. Martin, and D. DeSante. 1993. Handbook of field methods for monitoring landbirds. Forest Service Report PSW-GTR-144.

PRODUCTS:

The Principle Investigator will provide the following products:

- Annual and Final reports (9 copies) for inventories in standard scientific format including an introduction, detailed methodology, results, list of species, and discussion. Analysis of the completeness of the surveys will be included in the reports. Reports should be in MS Word format.
- Original field notebooks, notes, and photographs along with accompanying documentation.
- Raw data in MS Access format.

- Spatial data in Arcview format including original rover files, base files and differentially corrected files (if applicable) included on diskette, zip drive or CD; FGDC compliant metadata (the Principle Investigator should work closely with the Network Coordinator on metadata needs).
- Voucher specimens.

(Note – Data entry into NPSpecies, NPBIB, the Dataset Catalog, and ANCS+ will be performed by the Network Coordinator and/or the Network Data Technician.)

PROJECT SCHEDULE:

April-September 2002. Conduct field studies.

December 2002. Principle Investigator submits to the NGP Network Coordinator all products identified above (unless otherwise directed by the NGP Network Coordinator).

April-September 2003. Conduct field studies.

December 2003. Principle Investigator submits to the NGP Network Coordinator all products identified above (unless otherwise directed by the NGP Network Coordinator).

April-September 2004. Conduct field studies.

December 2004. Principle Investigator submits to the NGP Network Coordinator all products identified above (unless otherwise directed by the NGP Network Coordinator).

PERSONNEL HOURS:

Activity*	FY02	FY03	FY04	Total
Variable Circular Plot Transects	36	36	36	108
Special species and habitat searches	48	48	48	144
Study design	24	8	8	40
Travel between sites	40	40	40	120
Report writing		16	40	56
Miscellaneous	16	16	16	48
Total	164	164	188	516

* In addition, the NGP Network will contribute a minimum of 40 hours annually of personnel time to the field inventories.

BUDGET:

Expense	FY02	FY03	FY04	Total
Principle Investigator (184 hours @ \$30/hr)	\$1,846	\$1,846	\$1,846	\$5,538
Technician (332 hours @ \$19.5/hr)	\$2,166	\$2,166	\$2,166	\$6,498
Supplies	\$50	\$50	\$250	\$350
Vehicle Use (\$0.32 per mile)	\$350	\$350	\$350	\$1,050
Lodging and per diem	\$900	\$900	\$900	\$2,700
Indirect Costs (20%)	\$1,062	\$1,062	\$1,102	\$3,226
Total	\$6,374	\$6,374	\$6,614	\$19,362

Revised funding in FY03 to add \$9,750 to populate NPSpecies.